ABSTRACT

Methods and apparatus for storing data using two-dimensional arrays mapped to memory locations. In one implementation, a buffer page system includes: a data source, providing data elements in a first order; a data destination, receiving data

5   elements in a second order; at least two memory devices, each memory device having a plurality of memory pages including a plurality of memory locations, each memory location having an address; and where data elements are stored to at least one memory device and retrieved from at least one memory device in parallel, where each data element corresponds to an entry in one of a plurality of buffer pages, each buffer page

10   having a plurality of entries along a first dimension corresponding to the first order and a plurality of entries along a second dimension corresponding to the second order, and where data is stored to memory devices in the first order and retrieved from memory devices in the second order, and where each memory page stores data in multiple locations according to the first order and stores data in multiple locations

15   according to the second order.